

## CLAIMS

1. A spring manufactured by processing an elastic material, at least a part of the surface of the material formed with a film having composition and mechanical characteristics different from the material.
- 5 2. The spring according to claim 1, wherein the film is harder than the material.
3. The spring according to claim 1 or 2, wherein a plurality of layers of the film are provided.
4. The spring according to any one of claims 1 to 3, wherein the material is processed in a band-shape and wound in helical shape so that the spring becomes a  
10 mainspring.
5. The spring according to any one of claims 1 to 4, wherein the film is formed on a surface to which a compressive force is applied when the material is elastically deformed.
6. The spring according to any one of claims 1 to 5, wherein the film is a thin film  
15 of a substance harder than the material coated on the surface of the material.
7. The spring according to claim 6, wherein the material is formed of a non-metal.
8. The spring according to claim 6 or 7, wherein the thin film is formed on the material by a physical vapor evaporation of which film-forming temperature is around a room temperature.
- 20 9. The spring according to any one of claims 1 to 5, wherein the film is a diffusion layer formed harder than the material by diffusing a diffusion substance strongly bonded with a composition constituting the material from the surface of the material to the inside.

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10. The spring according to claim 9, wherein the material is formed of a metal capable of thermomigration treatment.

11. The spring according to claim 9 or 10, wherein the diffusion layer is formed on the material by a diffusion treatment which supplies a gas including a molecule  
5 containing element of the diffusion substance into a high-vacuum furnace and the diffusion substance is diffused from the surface of the material to the inside.

12. A driving mechanism using a spring according to any one of claims 1 to 11 as a power source.

13. A device using a spring according to any one of claims 1 to 11.

10 14. An electronic control timepiece, comprising:

a mechanical energy accumulator for accumulating a mechanical energy;

a power generator driven by the mechanical energy accumulator;

a gear train for mutually connecting the mechanical energy accumulator  
and the power generator;

15 an indicator connected to the gear train; and

a rotation controller for controlling rotary speed of the power generator,

wherein the spring according to any one of claims 1 to 11 is used as the  
mechanical energy accumulator.

15. A timepiece comprising a mechanical energy accumulator and being driven by  
20 the mechanical energy accumulator, wherein the spring according to any one of claims 1 to 11 is used as the mechanical energy accumulator.